



(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2019/2020 ACADEMIC YEAR

SPECIAL /SUPPLEMENTARY EXAMINATIONS

YEAR ONE SEMESTER ONE EXAMINATIONS

**FOR THE CERTIFICATE IN INFORMATION
TECHNOLOGY**

COURSE CODE :CSC 360

COURSE TITLE :INTELLIGENT AGENTS

DATE: 17/02/2021 TIME: 08.00 A.M – 10.00 A.M

INSRUCTIONS TO CANDIDATE

ANSWER QUESTION ONE AND ANY OTHER TWO

QUESTION ONE [COMPULSORY] [30MARKS]

- a) Define the following terms
 - (i) Software agent? [2 marks]
 - (ii) percept sequence [2marks]
 - (iii) Knowledge [2marks]
- b) Briefly discuss any three properties of an agent's environment [3 marks]
- c) Discuss any two methods of knowledge representation [4 marks]
- d) Define the term atomic sentence [2 marks]
- e) (i) What is an expert system [2 marks]
(ii) Briefly explain the components of an expert system [3 marks]
- f) Explain with an example the meaning of existential introduction [3 marks]
- g) What is reinforcement learning? [2 marks]
- h) Discuss the goal based agents [5 marks]

QUESTION TWO [20MARKS]

- a) Differentiate between reactive and layered architecture [4 marks]
- b) What is machine learning? [2 marks]
- c) Briefly discuss the two types of unsupervised learning techniques [4 marks]
- d) Define the term resolution in first order logic [2marks]
- e) Briefly outline the steps for resolution [4 marks]
- f) (i) What is forward chaining [1 marks]
(ii) What are the properties of forward chaining? [3 marks]

QUESTION THREE [20MARKS]

- a) Discuss any two artificial intelligence techniques [4 marks]
- b) Explain what is game playing [2 marks]
- c) (i) What is Natural Language Processing (NLP)? [2 marks]
(ii) Briefly discuss the steps in Natural Language Processing [5 marks]
- d) Explain the process of building an expert system [5 marks]

- e) What is an actuator? [2 marks]

QUESTION FOUR [20MARKS]

- a) What is Artificial Neural Network? [1 marks]
- b) Define the term Computer Vision [1 marks]
- c) What is a predicate? [2 marks]
- d) Represent the following statement in First Order Logic [4 marks]
- Some students are intelligent
- e) (i) What is a semantic network? [2 marks]
- (ii) Represent the statements using a semantic network [5 marks]
- Jimmy is a cat
 - Jimmy caught a bird
 - Jimmy is owned by John
 - Jimmy is white in colour
 - Cats like ice-cream
 - The cat sat on the mat
 - A cat is a mammal
 - A bird is an animal
 - All mammals are animals
 - Mammals have fur
- f) With the help of an example, define the term universal generalization [5 marks]

QUESTION FIVE [20MARKS]

- a) What is the meaning of a complex sentence? [1 marks]
- b) Briefly explain the two types of knowledge base agents [4 marks]
- c) Discuss any two types of agents [4 marks]
- d) Explain the main composition of intelligence [5 marks]
- e) What is a knowledge base agent? [2 marks]
- f) Briefly discuss the components of a learning agent [4 marks]